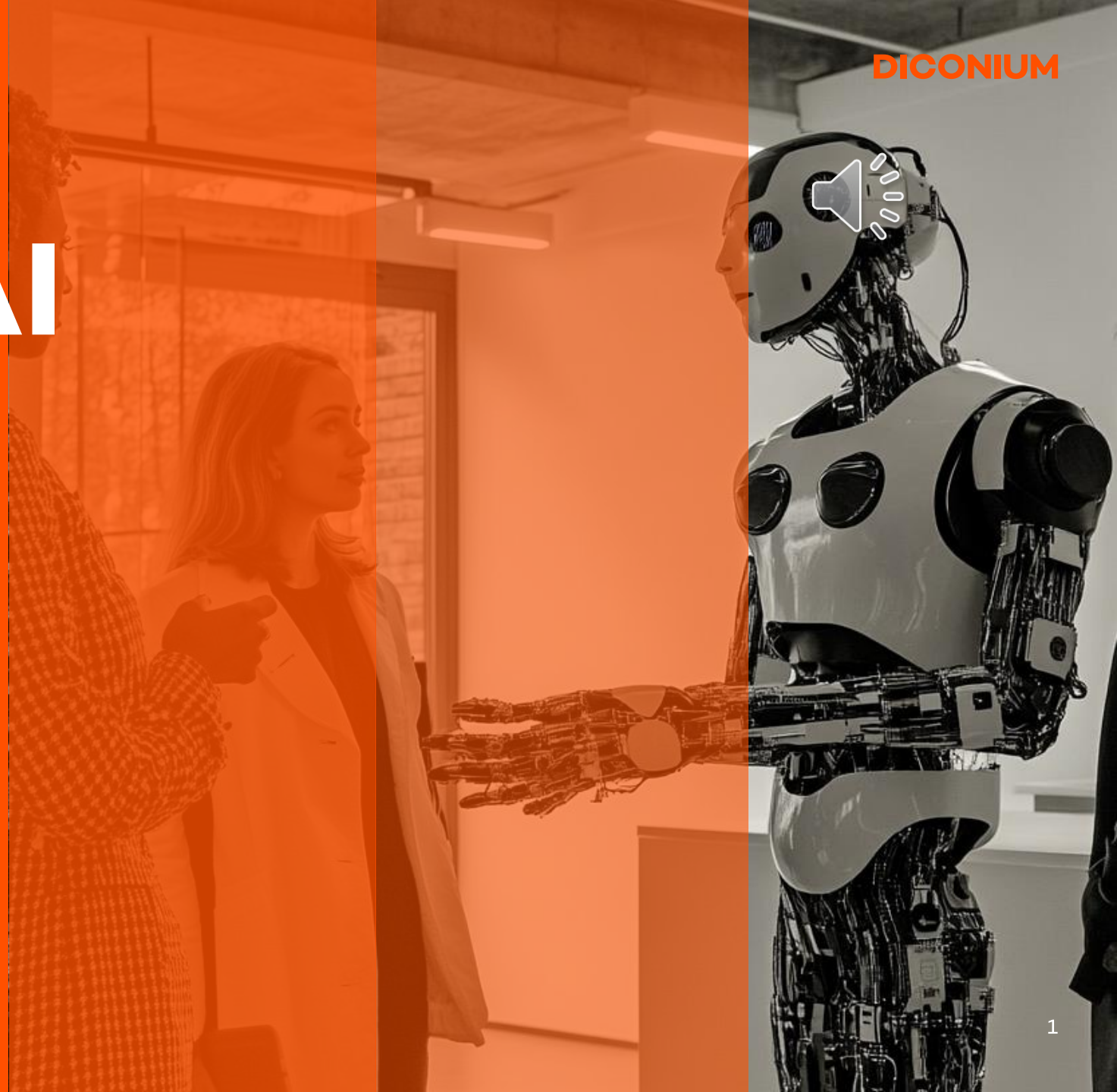


# Exploring AI Frontiers

A talk by Michael Rocktäschel



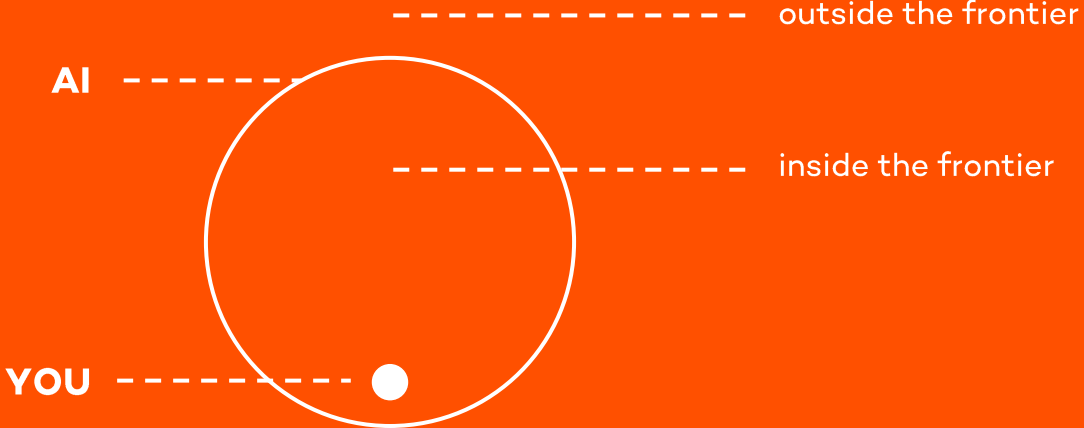
# Hi I'm Rocky

- Expert Partner
- Prompting for more than 800 days
- Spending 4-8 hours per day on AI
- Co-Leading AI@diconium Initiative
- Project Lead for two large GenAI Integration Projects

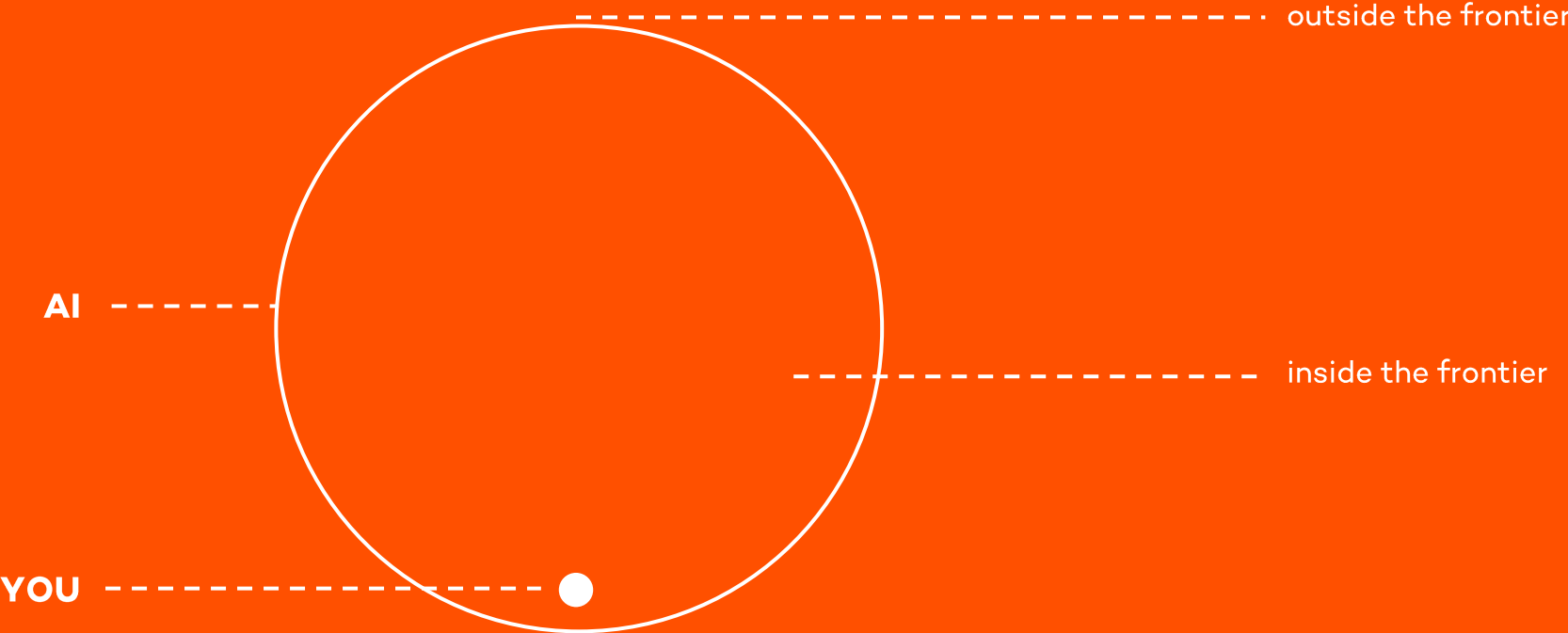
Let's connect



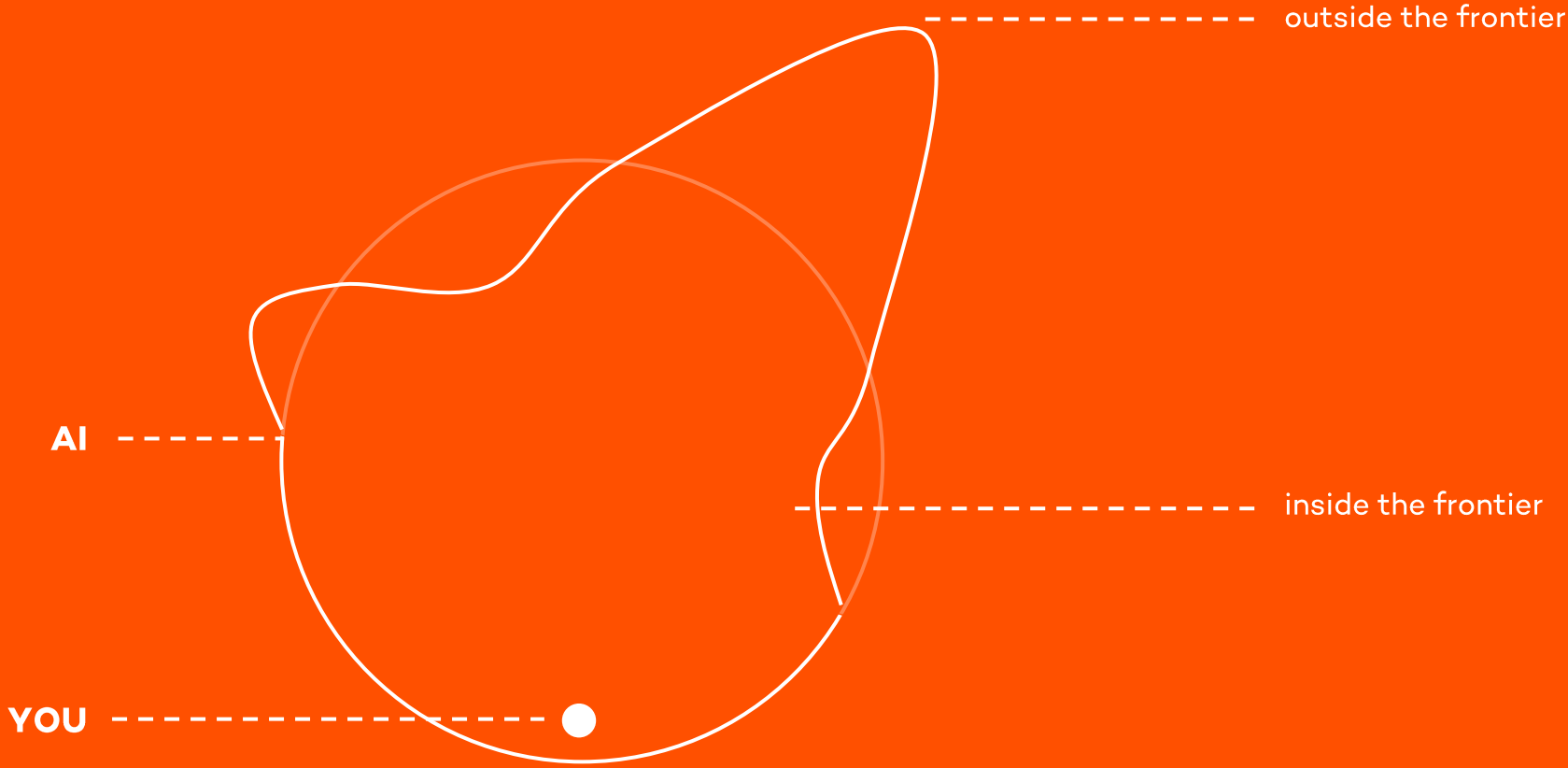
# Let's explore AI Frontiers



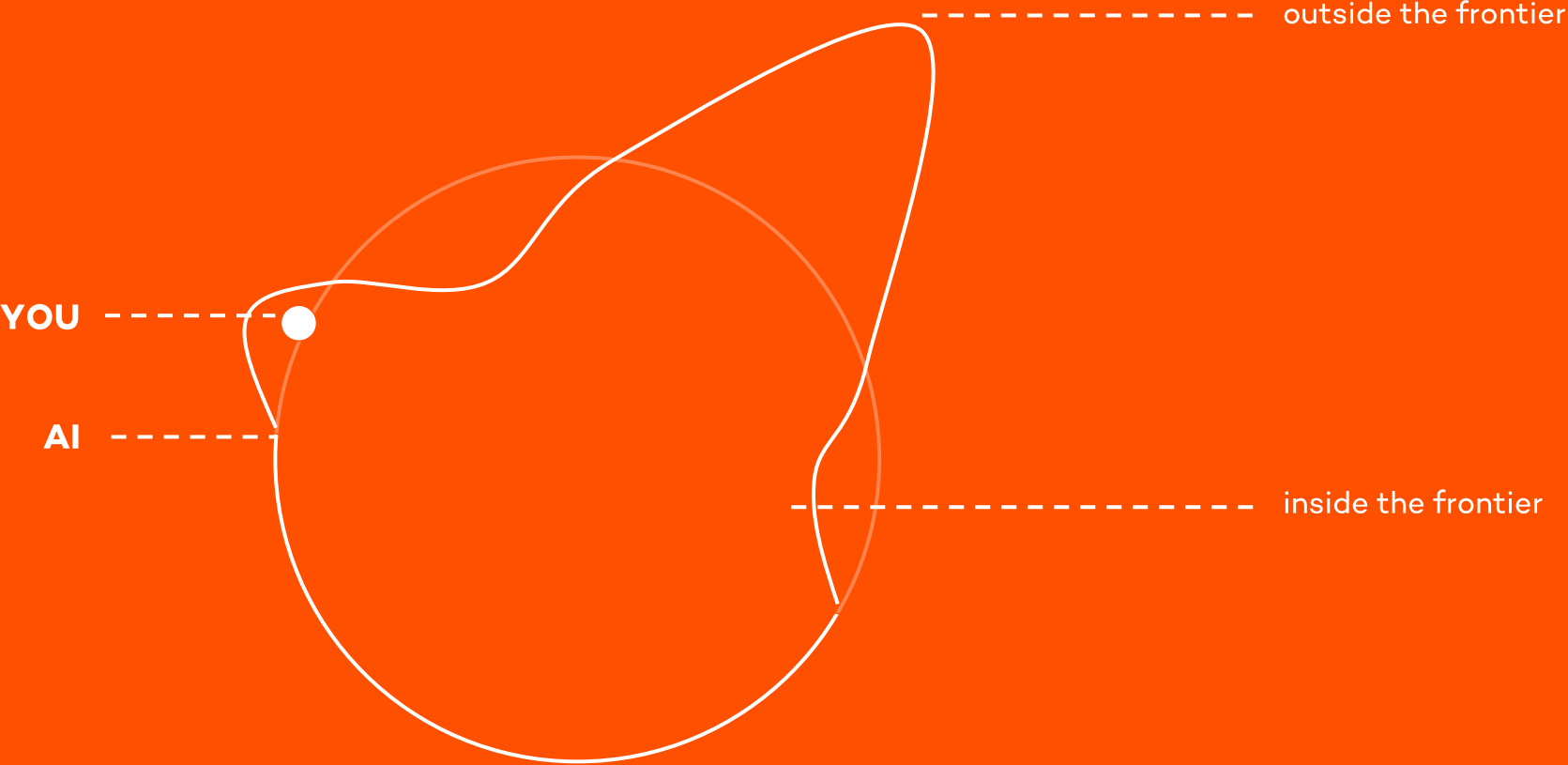
# AI is pushing the frontier of what's possible



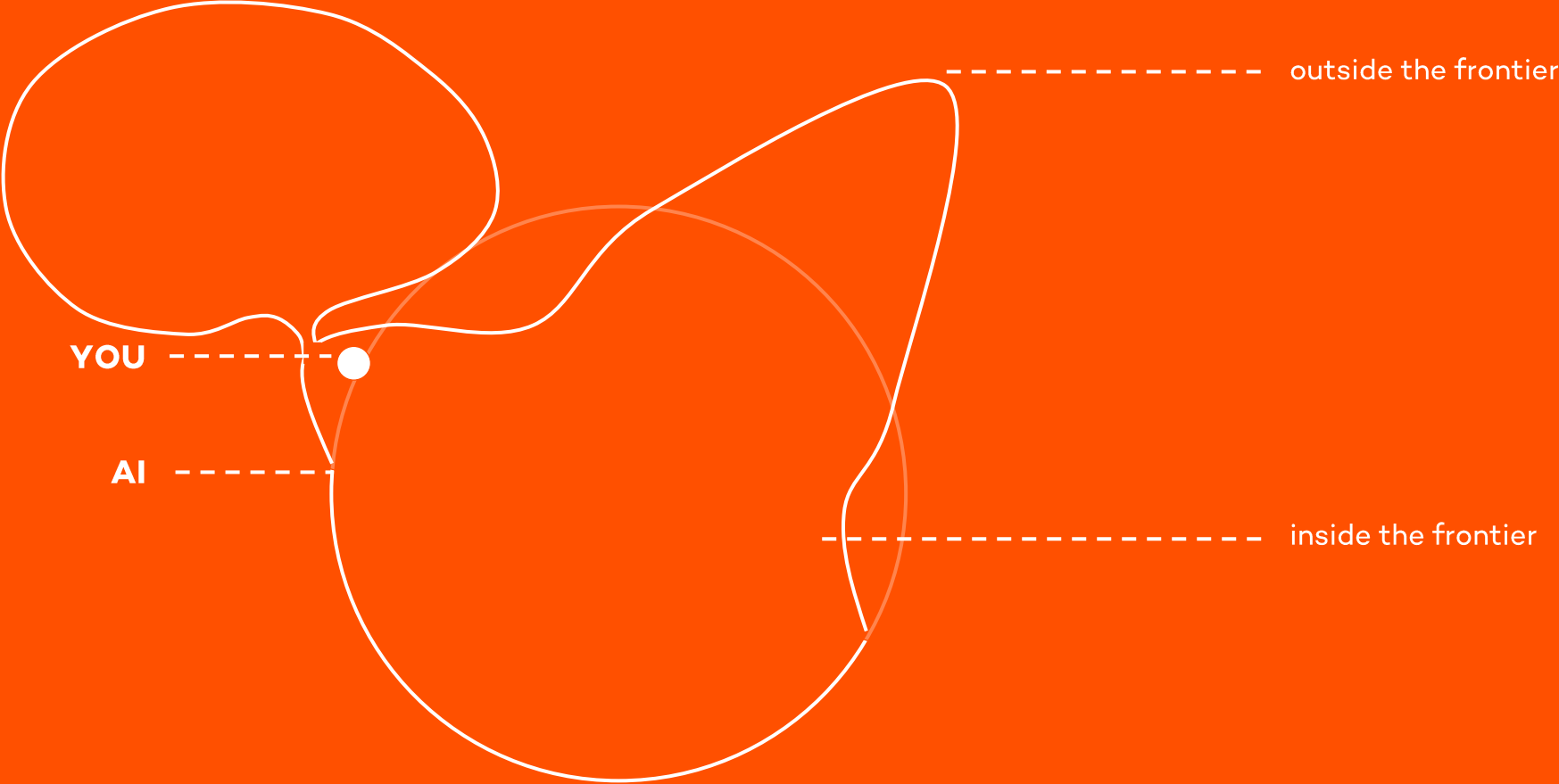
# But this Frontier is Jagged



# You need to move and push



# And look for value creation with Software, Data and AI



I'm ready to fly





# Frontiers to Explore

01

## **AI Capabilities**

A quick overview about what's possible with GenAI

02

## **AI Ethics**

What should you be aware of?

03

## **AI Adoption**

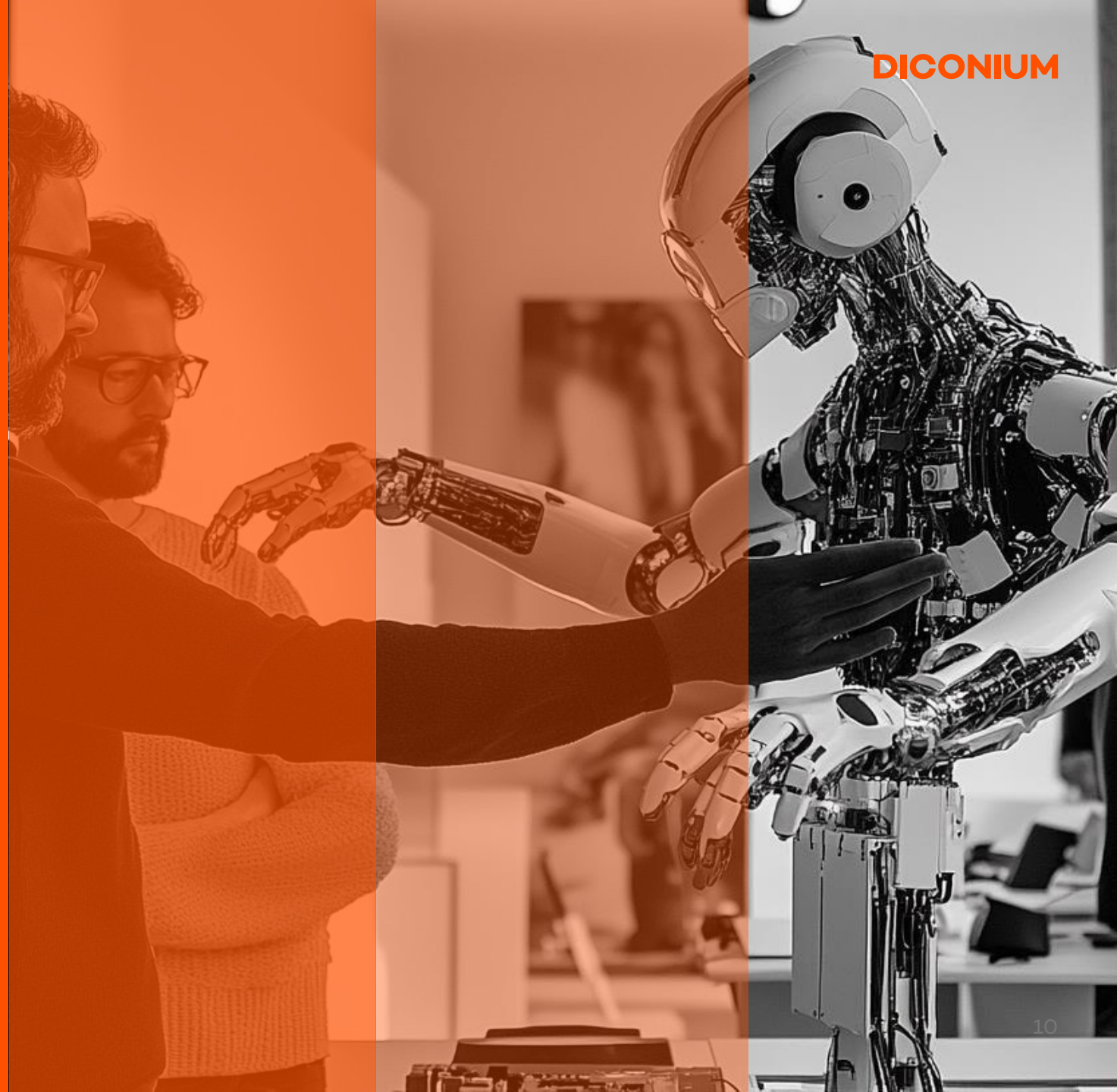
How can you drive AI Adoption?

# Frontier of AI Capabilities

EXPLORE

diconium | internal

DICONIUM



# Before we dive into the modalities, here are some great news.

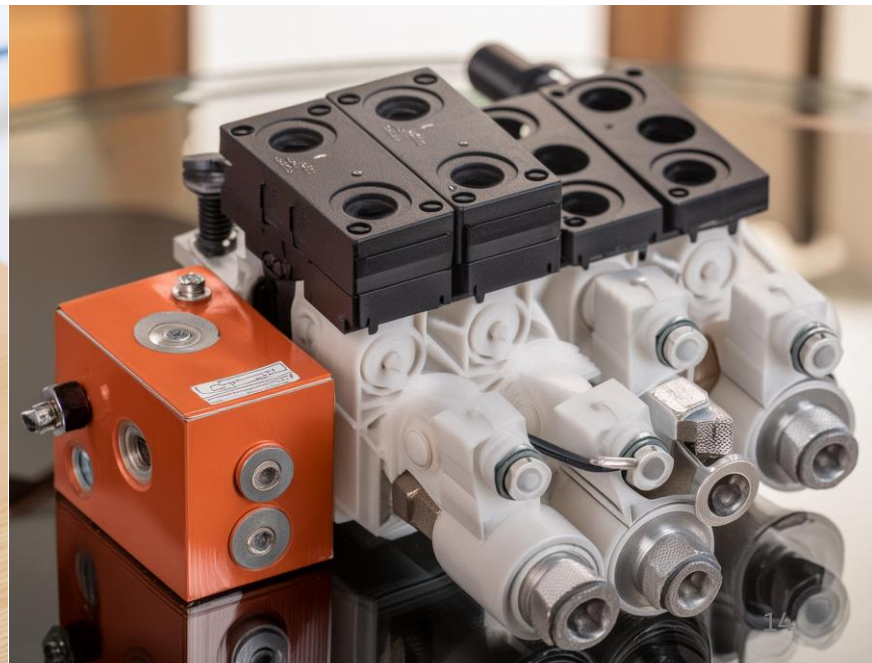
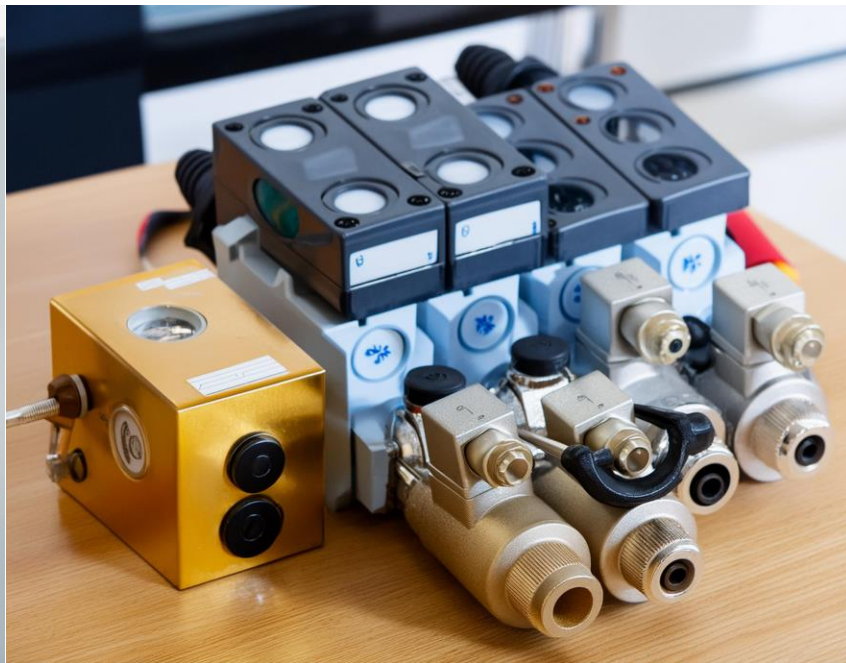
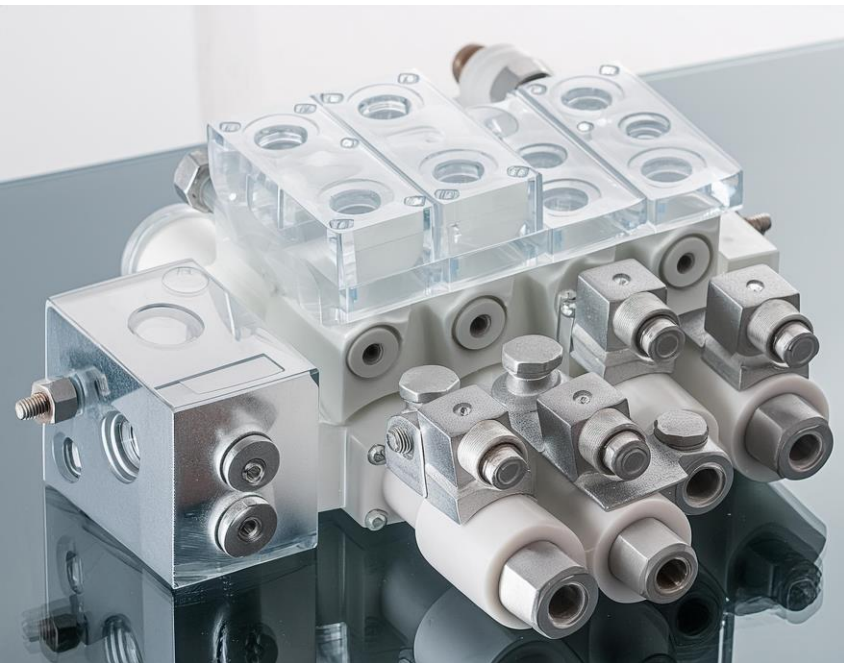
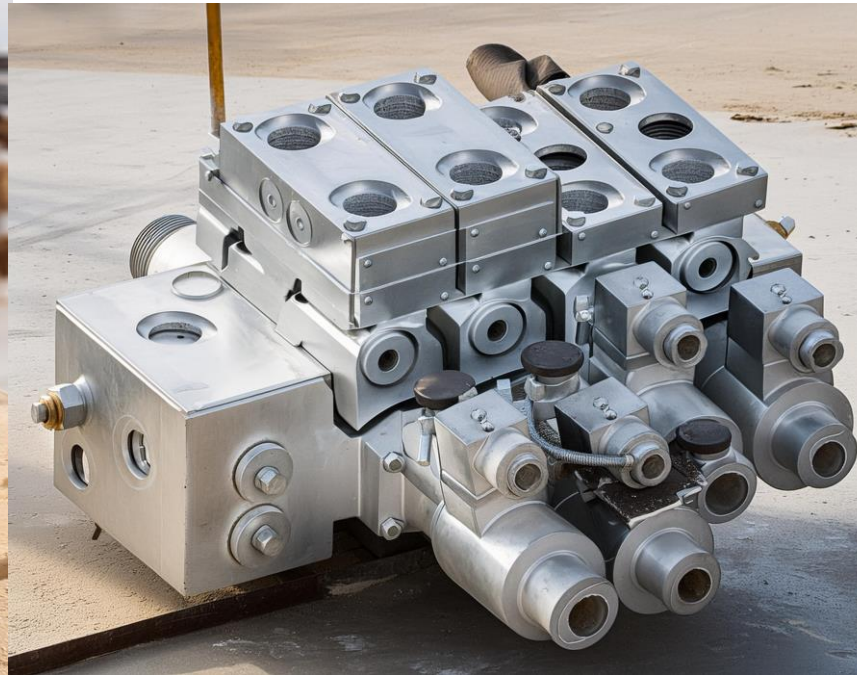
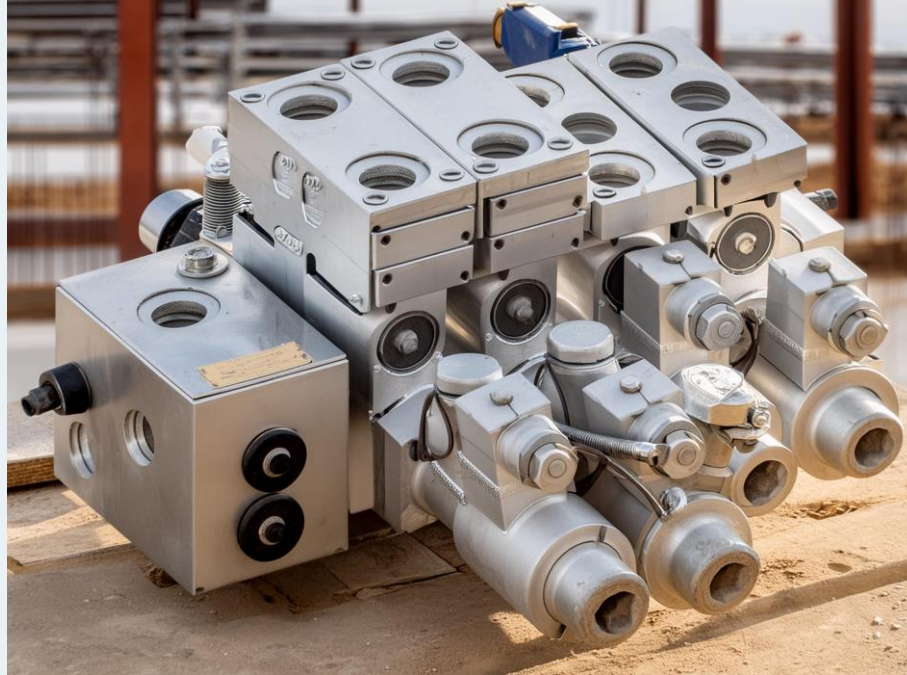
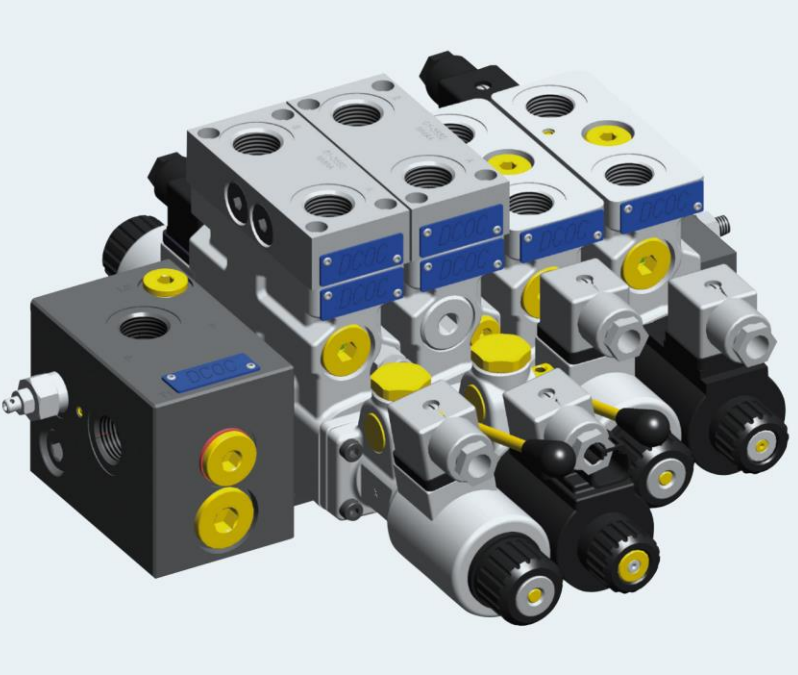
- Quality is reaching better than (average) human levels
- Realtime Options are available for almost every modality
- Cost goes down fast
- Capabilities get integrated into products and services as we speak

# Moving Frontiers: GenAI for Images

- Low resolution
- Artifacts
- No Control
- Few Styles







# Personalized Portraits

Turn a single biometric photo into a complete revenue stream



# Virtual Try On

Reduce returns by using GenAI for virtual try-ons.





# Product Photography

Reuse existing assets to deliver high quality brand content at a fraction of the cost.



# Marketing

Tell compelling visual stories



DICONIUM

# GenAI for Video

- Low resolution
- Artifacts
- 10 years away





Source: Chris First

# Attract Customers Attention

54% of customers prefer video instead of other content formats.



# Social Sales

Create Virtual Avatars to promote your products



# Extract Information from Video

„Provide a summary of all major announcements made in that 2h pressconference and provide a structured JSON output“

The screenshot shows the Google Year in Search interface. At the top right, the year '2022' is displayed in large black font, with the 'DICONIUM' logo in orange text to its right. Below this, a vertical list of years from 2021 down to 2012 is shown. The year '2020' is highlighted with a blue background and a white mouse cursor icon pointing to it. To the left of the year list, the text 'Year in Search' is visible in large black font. Below the year list, there is a video player showing a view of Earth from space with a white play button icon in the center. The video player is partially obscured by a black bar at the bottom. To the right of the video player, there is a vertical list of years from 2019 down to 2012. The text 'ee what Google Trends reveal about the' is visible above the 2019-2012 list, and 'people who inspired us, and the moment' is visible below it. The text 'shared, the' and 'red the' are also visible to the right of the 2019-2012 list. The text 'world's attention each' is visible below the 2018-2012 list.

# Extract Information from Video

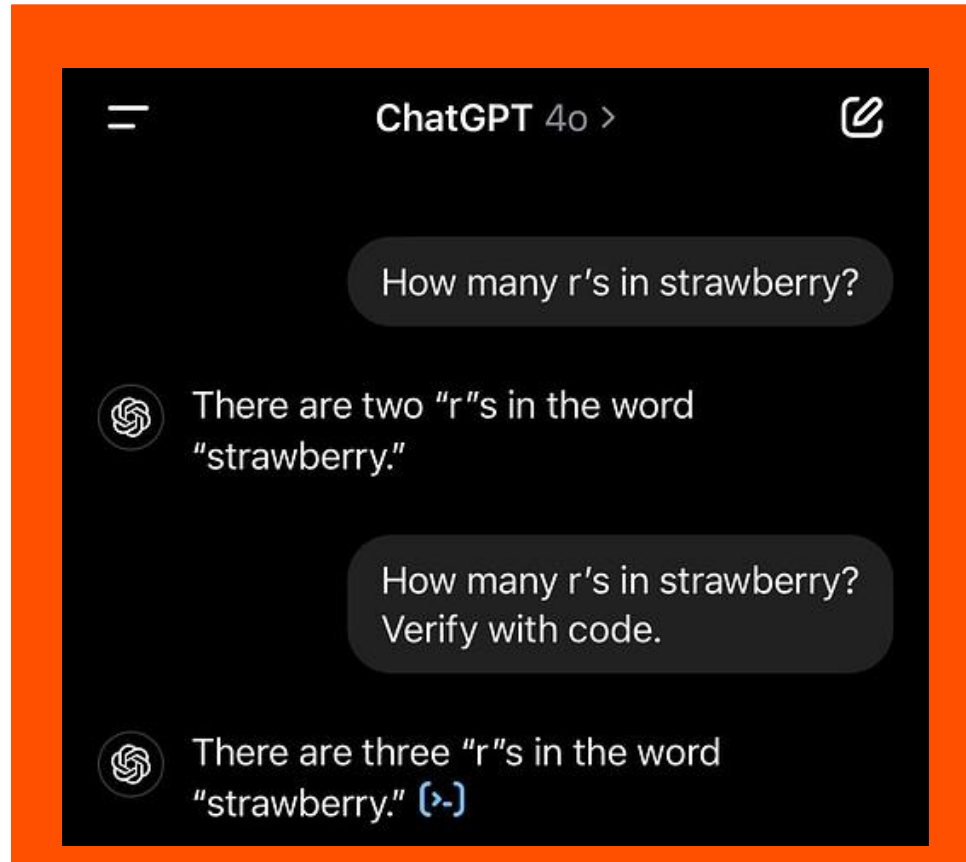
Advanced Entity Recognition and Labelling Algorithms from Video Feeds are a byproduct of Video Foundation Models.





# GenAI for Text and Code

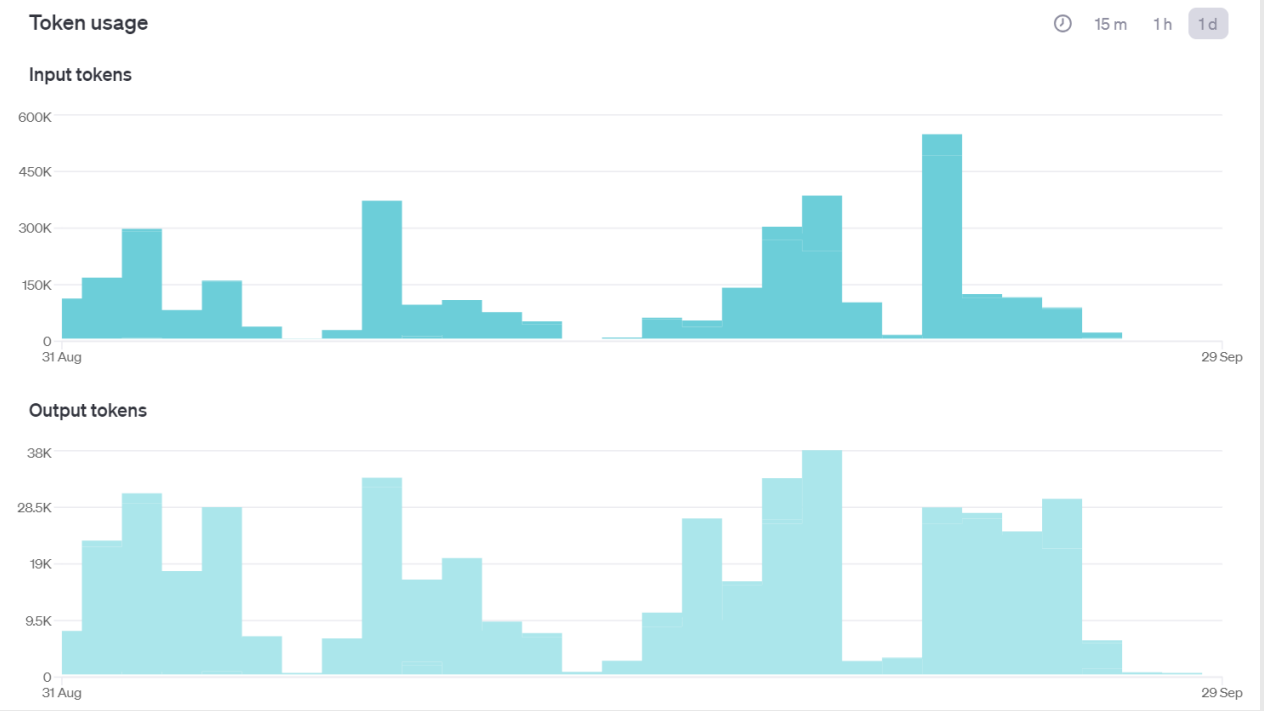
- Slow and basic responses
- Limited Context Windows
- Halluzinations
- No integration



# Create, Improve, Translate, Adapt

Your content workflows will never look the same

The screenshot shows a user interface for 'Mafo-Assistant\_SF'. It features a list of workflow items, with 'TRANSLATION\_HISTORY\_BLOG' highlighted. Other items include 'Assistant\_Bewertung\_Dieter\_DB', '#Like, [REDACTED] PAIDMEDIAreporting\_WS', 'Categorization\_News\_Stories', 'Translator\_V01', 'Assistant\_Dieter\_DB', '[REDACTED] SUMMARIZER', and '#Like, [REDACTED] PAIDMEDIApPlanning\_WS'. A search icon is visible in the top right corner of the list.



# Bring down software costs

GenAI is changing Software Engineering E2E as we speak.

PRODUCTIVITY INCREASE

# 20%

AI CODE UTILIZATION

# 25%

CODE ACCEPTANCE INCREASE AFTER 6 MONTHS

# 10x

1. Planning	Requirements Augmentation	Project Plan Generation	Risk Management	Project Planning	Resource Planning
2. Analysis	Requirements Collection	Requirements Quality Check	Functional and System Requirements	Research and Analysis	SW Requirements Specification
3. Design	Architectural Design	User interface & App Design	Database Design	System Interface Design	Detailed Documentation
4. Development	Code Generation	Bug Detection	Unit Testing	Software Integration	Coding Documentation
5. Testing	Test Case / Data Generation	Regression Testing	User Interface Testing	Performance Testing	Bug Reports
6. Deployment	Environment Setup	Data Migration	Integration Testing	Training Material	User Feedback Analysis
7. Maintenance	Incident Analysis	Bug Prioritization	System Updates	System Maintenance	Release Notes and User Support

# Add software to your product portfolio

“Please rebuild this app interface in native react. When clicking on + increase the bike watts stepwise which each press up to 250 Watts, when clicking on - decrease the bike watts stepwise which each press down to 0.”



```
import React, { useState, useEffect, createContext, useContext } from 'react';
import { ChevronUp, ChevronDown, Home, Map, PlayCircle, FileText } from 'react-native';

const ThemeContext = createContext();

const ThemeProvider = ({ children }) => {
  const [isDarkMode, setIsDarkMode] = useState(false);
  const toggleTheme = () => setIsDarkMode(prev => !prev);
  return (
    <ThemeContext.Provider value={{ isDarkMode, toggleTheme }}>
      {children}
    </ThemeContext.Provider>
  );
};

const EBikeDashboard = () => {
  const { isDarkMode, toggleTheme } = useContext(ThemeContext);
  const [bikeWatts, setBikeWatts] = useState(52);
  const [riderWatts, setRiderWatts] = useState(120);
  const [speed, setSpeed] = useState(0);
  const [time, setTime] = useState(0);
  const [distance, setDistance] = useState(0);
  const [cadence, setCadence] = useState(0);
  const [powerZone, setPowerZone] = useState(1);
  const [sensitivity, setSensitivity] = useState(50);
  const [isRiding, setIsRiding] = useState(false);
  const [showMap, setShowMap] = useState(false);
  const [route, setRoute] = useState([]);

  const handleIncrease = () => setBikeWatts(prev => Math.min(250, prev + 10));
  const handleDecrease = () => setBikeWatts(prev => Math.max(0, prev - 10));
  const toggleRide = () => setIsRiding(prev => !prev);

  useEffect(() => {
```

**If the only  
thing AI can  
do is code,  
it will already  
change the  
world.**

# Modality Frontiers Overview 10/24

Modality	Quality & Realism	Interactivity & Adaptability	Integration	Scalability & Efficiency
Image	High	Medium	Medium	High
Video	Medium	Low	Low	Medium
Music/Sound	High	Low	Medium	High
Text	High	High	High	High
Code	Medium	High	Medium	High
Vision	Low	Medium	Low	Low
Speech	Medium-High	Medium	Medium-High	High
3D/VR/AR	Low	Low	Low	Low
Data (Tabular)	Medium	High	Low	Low

# Navigating Capability Frontiers

## WAIT

- AI in Legal Engineering
- AI in Knowledge Management
- AI in Critical Infrastructure

## WATCH

- Agentic Systems
- AI in Customer Service
- AI in Human Resources

## WIN

- AI in Marketing and Communication
- AI in Software Engineering

# Frontier of AI Ethics

EXPLORE





# Generative AI Poses a Range of Problems

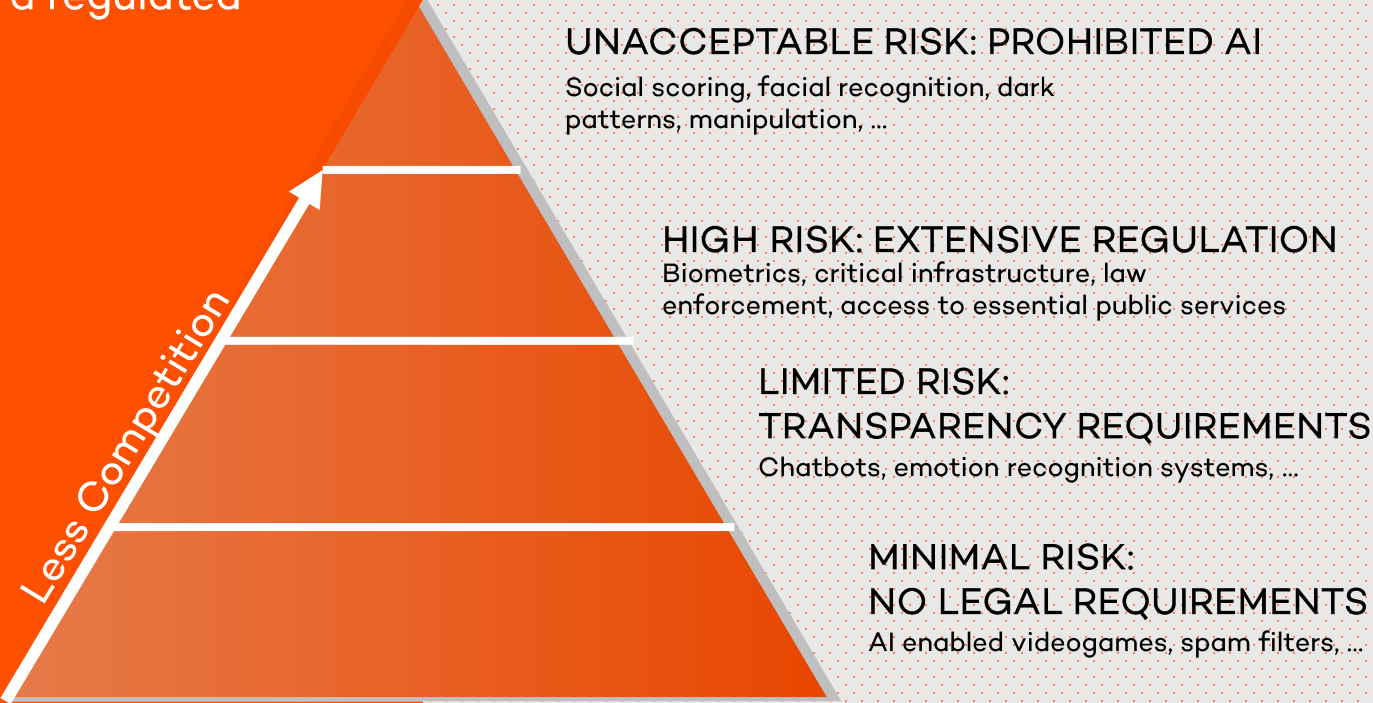
- **Low Quality Content** is flooding the internet
- **Deepfakes** and **Misinformation** are on the rise
- The **Ethics of Training** and **Compensation** is concerning
- **Negative AI Sentiment** will worsen before it will get better

# Generative AI Poses a Range of Problems

- AI models are **black boxes**, making troubleshooting difficult.
- Poorly organized information leads to **bad answers**.
- **Hallucinations** are damaging to your brand and RAG won't fix them.
- There aren't enough **qualified people** to address these AI issues.

# EU AI Act gives you guidance

Have you ever looked at the AI act as an enabler for new business in a regulated market?

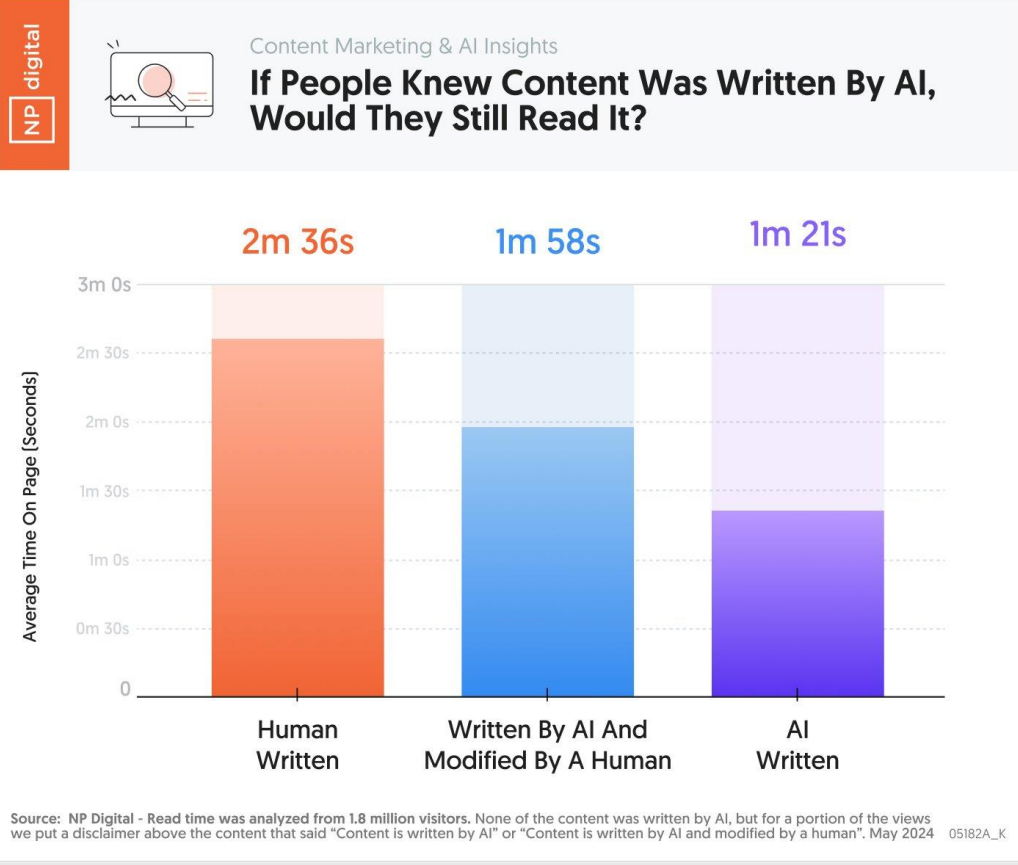


# Perception is King

Humans often prefer AI generated content unless you tell them.

## Using the term 'artificial intelligence' in product descriptions reduces purchase intentions

By Eric Hollenbeck, Carson College of Business



**YOU HAVE TO BALANCE CHANCES  
WITH ASSOCIATED RISKS AND  
LIMITATIONS -  
both in the short and long run**

# Navigating Ethics Frontiers

## WAIT

- Don't move accountability to AI Systems only
- Don't assume pDOOM = 1

## WATCH

- Prepare for EU AI Act
- Identify High Value Usecases within regulated areas

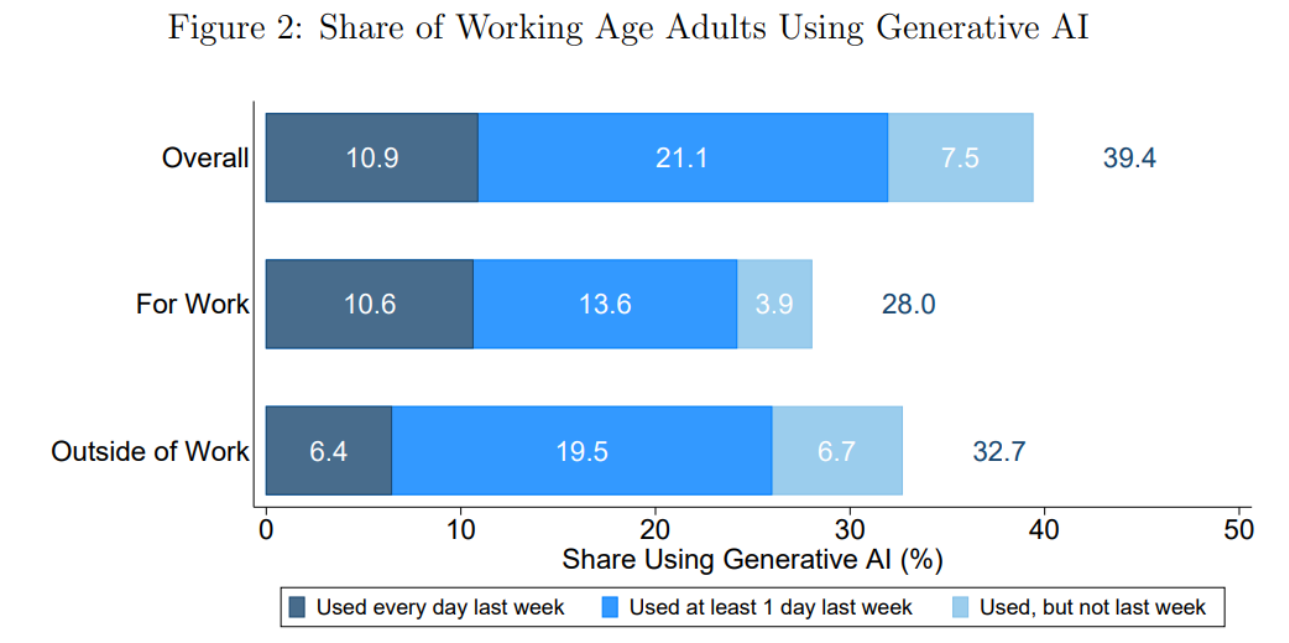
## WIN

- Educate and train your employees on AI attack vectors like fraud, scams or cyber attacks
- Define what authenticity means for your brand and which lines not to cross
- Get solutions available which adhere to existing data protection and regulations

# Frontier of AI Adoption

EXPLORE

# Customers are adopting to a new reality



Source: The Rapid Adoption of Generative AI 09/24



# Companies reporting positive outcomes

## Auswirkungen der KI in deutschen Unternehmen

Angaben in Prozent

● stimme voll und ganz zu ● stimme eher zu ● stimme eher nicht zu ● stimme überhaupt nicht zu



Grafik: sacco. / Quelle: PwC 2024

# Is your company on track with AI Adoption?



## Behind

## On Track

## Ahead

### Belief

AI is a toy, AI is all hype

AI is a tool, it helps me to be more efficient

AI is a system, it's a shift in how we work

### Internal Training

No AI training, no processes, no budget

AI training for select teams (e.g., support, marketing), set budget

Comprehensive and tailored AI training for all staff, budget for tech and change

### Policy

Bans all generative AI (or the opposite, allows everything)

Allows some AI tools with a defined policy, even if minimal.

Uses multiple levels of AI tools (usually 2 or 3), and has a policy for safe employee testing of new tools.

### Use Case Progress

Wait for solid proof of AI benefits before starting, or apply AI everywhere without a purpose

Use cases + broad but shallow utilization of productivity tools like Microsoft Copilot or ChatGPT Enterprise

Multiple AI projects in production, all employees have AI access, AI integrated into products for growth

# How to increase adoption

## Give broad access

Both in terms of tools and training while keeping costs managed

## Focus on building

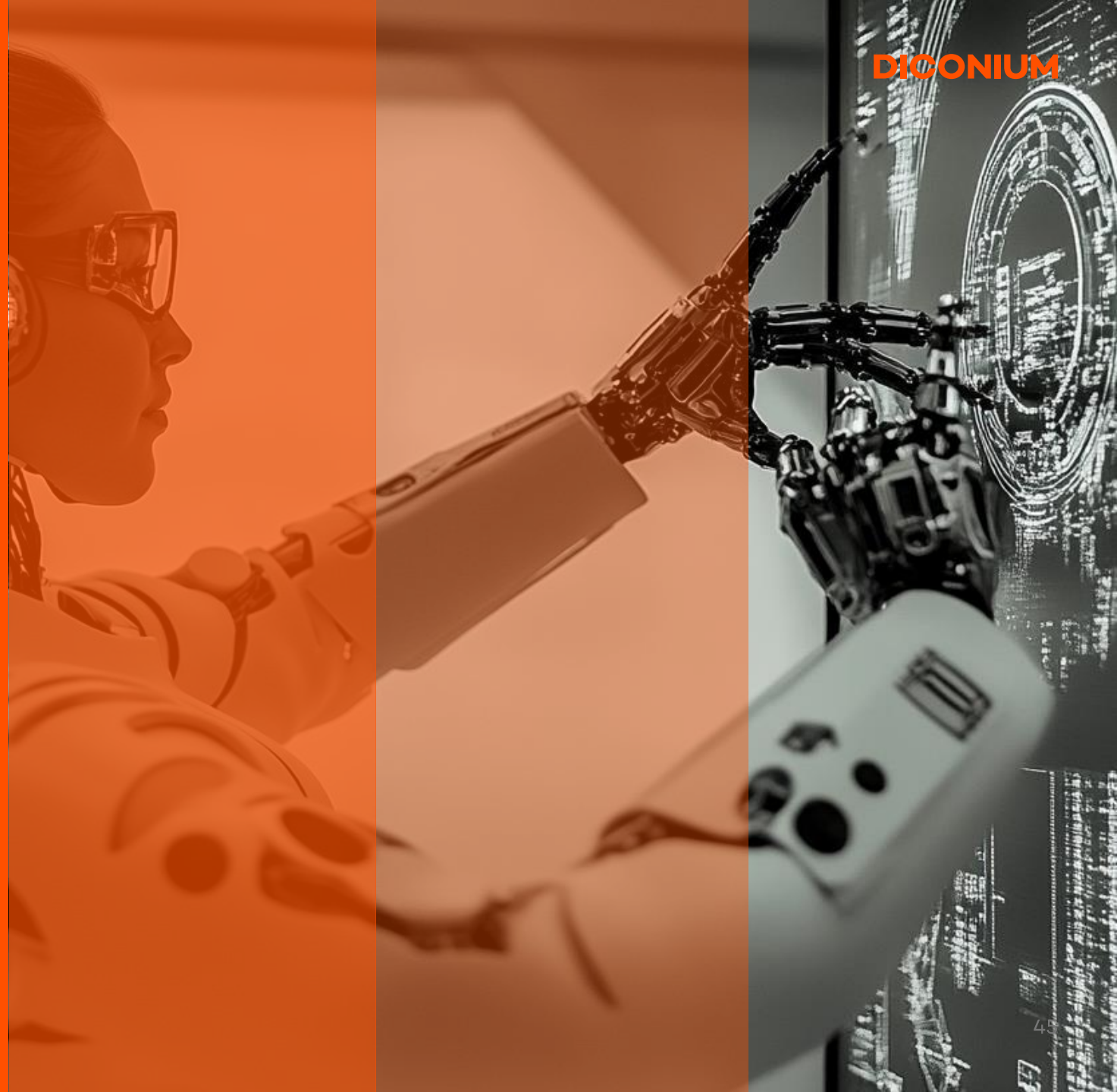
Not analysis or abstract strategy

## Provoke and Protect

Show some provocative AI magic for the sceptics but also align your award system and lead by example.

# Final Frontier

CONCLUDE



# Frontiers by OpenAI

- **Stage Level 1:** Chatbots, AI with conversational language.
- **Stage Level 2:** Reasoners, human-level problem solving.
- **Stage Level 3:** Agents, systems that can take actions.
- **Stage Level 4:** Innovators, AI that can aid in invention.
- **Stage Level 5:** Organizations: AI that can do the work of an organization.



**And we haven't even talked about  
these guys here**



# Main Takeaways

**1**

## **Increase your Capabilities**

Achieve more with less now with the help of AI

**2**

## **Educate and Prepare**

Educate about Risks and Prepare for Impact

**3**

## **Adopt to Adept**

Increase Adoption to leverage further advancements in AI

**Thanks and  
See you at the Live Demo  
at 15:00**



# Live Demo Examples



Stay in Touch

## 01

### It's Podcast Time

Turn boring corporate news into an engaging podcast

## 02

### Speed Coding

Create a functional webapp within 10 minutes

## 03

### Image Magic

Real Time Image Generation and Style References

## 04

### The Talking Dead

Clone any (English) voice within minutes.

## 05

### Open Source without coding

Contribute to an Open Source Software without writing a single line of code

